# Interim Forest Management Plan

## Property Identifiers

Property Name and Designation: Kroenke Lake State Natural Area

County: Shawano, T27N. R15E Section 5 (~north half), Richmond Township

Property Acreage: 150 acres

Forestry Property Code(s): 5906

Master Plan Date: none completed

## Part 1: Property Assessment (1-2 pages maximum)

### General Property Description

**Landscape and regional context**
This property is located in the far western portion of the Northern Lake Michigan Coastal Ecological Landscape. The SNA shares its northern border with the Menominee Indian Reservation. This landscape is best known for the coastal wetlands and river systems associated with Door County and the west shores of Green Bay. The western portion of the landscape is known for the historically extensive maple basswood-beech and hemlock-hardwood forests, northern white cedar swamps, hardwood-conifer swamps. Present day land use has changed the once dominantly forested (96%) landscape to more of a working farm landscape with 51 percent of land in agriculture and only 34 percent forested. Approximately 40 acres of the Kroenke property is open land either in agriculture or converting to trees, the remaining 110 acres is forested.

**History of land use and past management**
DNR acquired the property from Irvin and Dorothy Kroenke in 2006. The Kroenke family the actively farmed the land and operated a sawmill a few miles from this site. Timber was harvested from the site and sold to a local mill. Winter sports were important to the family and so logging roads were graded and maintained as cross country ski trails and dog sled courses.

The Kroenke family protected the larger growth trees from harvesting to enhance the older growth character of the site. A portion to the SNA was harvested using timber stand improvement yet maintaining the older growth character of the site. The eastern portion of the SNA was used as a sugar bush for maple syrup production in prior years. The lake portion of the SNA was managed for large growth red oak and white pine, white cedar and hemlock growth and protection.

### Site Specifics

This is a highly variable property with large variances in topography, wetness and timber types in addition to agricultural fields. The eastern portion is predominantly upland oak and northern hardwood forests with a bog inclusion. The western side is a bowl ringed by northern hardwoods in the uplands and a lake surrounded by cedar and tamarack swamps. Some inclusions of aspen and red pine occur in the western portion of the property. Two areas of former agricultural field totaling approximately 18 acres have been planted to northern hardwoods since DNR purchase of the property. The planting occurred on two sites, with the most recent site being a 10 acre plantation that has been fenced with deer exclosure fencing to prevent the extreme losses from deer herbivory being experienced in Shawano County. The remaining agricultural lands are still being cropped under a share cropping agreement. In general forest health is good, but some areas of oak have deteriorated due to two-lined chestnut borer and the red pine planting is in severe decline due to it never being thinned. Oak wilt has not been documented on the property and the risk of infection is low due to the high diversity of tree species. In addition, there is some black locust and possibly boxelder in portions of the uplands that can be addressed during future timber harvests. The long term goal for the property is to eventually convert the agricultural lands to forests with successive plantings over time.

- State Natural Area designations: Yes
- High Value Conservation Forests (HCVF): The lake and surrounding wetlands
- Biotic Inventory status: No
- Deferral/consultation area designations (refer to the following website): No
- Rare species: There are three species known from the site; one bird and two invertebrates.
- Invasive species: Bull and Canada thistle, common burdock, black locust, honeysuckle, and common buckthorn
- Soils: Muck soils comprise ~15 percent of the site and are found in the lowland cedar /tamarack forest surrounding Kroenke Lake. Sandy loams and loamy sands comprise ~85 percent of the site. These soils are currently being shared cropped, have been recently converted to trees and support the northern mesic forest community.

### Cultural and Recreational Considerations

- Cultural and archeological sites (including tribal sites): There is one archeological record documented on the property. Confer with DNR Archeologist and property manager on avoidance measures.

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## Part 2: IFMP Components (1-2 pages maximum)

**Management Objectives** (Outline primary forest management objectives):

1) White Cedar and Tamarack (Stands 4, 8, 11, 12)
    a. Passively manage the white cedar and tamarack stands as a reserve for swamp conifers.
    b. Natural processes will determine the structure of these older forests and wetlands.

2) Red Pine (Stand 7)
    a. Even aged management for timber production with the long-term goal of converting it to a mixed deciduous cover type.

3) Aspen (Stand 5)
    a. Timber harvests will be used to convert aspen stands to longer lived species.

4) Oak and Mixed Deciduous (Stands 1, 3, 4)
    a. The long-term objective for the oak and mixed deciduous stands is to create old-growth characteristics.

5) Mixed Deciduous tree plantings (Stand 12)
    a. Promote natural cover type diversity for the area
    b. Use initial timber harvests to increase growth and vigor of species
    c. Long-term goals is to create old-growth characteristics

**Property Prescriptions** (Identify specific and pertinent prescriptions by area or forest type, including passive management areas, extended rotation, and other information that will help achieve the objectives):

**White Cedar and Tamarack**

a. No active management in these stands.

**Red Pine Plantation**

a. Even-aged management of pine stands by following the standard order of removal guidelines. This two acre stand has never been thinned and is in danger of being lost to wind or disease if not thinned soon. The trees have very poor crown ratios and many have already died or tipped over from insect infestation or wind. The goal of the initial thinning is to thin following the even-aged order of removal to maintain vigor. The average basal area measured in 2007 was 230 sq.ft./acre. No more than 1/3 of the volume should be removed in this thinning to prevent more shock to this stand. Eventually this stand will be replaced naturally by hardwood regeneration from below, but proper thinning to maintain vigor will allow for some of these trees to be left to live out their natural lifespan as scattered sentinel trees through time.
b. Evaluate invasive species prior to timber harvesting. Harvest dates may need to be deferred until invasive species are addressed.

**Aspen**

a. These stands are small and scattered. Selectively harvest individual aspen and non-desirable trees such as boxelder and black locust to promote conversion to oak or mixed deciduous.

**Oak and Mixed Deciduous**

a. Use uneven-aged selection harvests to encourage long-term multi-aged diversity. Use basal area guidelines recommended for managed old growth.
b. Gaps will be created to encourage age class diversity and edge cover.
c. Snags, cavity trees, or other trees having special value to wildlife will be retained. Where there is a shortage of standing dead snags (based on managed old growth guide) poorer quality large diameter trees that normally would be harvested in a timber sale could be girdled to create the desired condition. Leaving some ash instead of liquidating ash when EAB does reach this area would also provide a source of live and dead snag trees for the foreseeable future.
d. Black locust and other undesirable tree species will be removed in first harvest.

**Mixed Deciduous (tree plantings)**

a. Current tree plantings will be maintained through spraying and fencing until seedlings reach a height where they will not be detrimentally browsed by deer.
b. As current plantings reach established conditions, new plantings will be established adjacent to them and fencing materials can be reused from site to site. Plantings will be native hardwoods with scattered white pine to restore the site to species associated with climax northern hardwoods that would normally be seen on this soil type such as sugar maple, basswood and beech.

Approvals:

Joe Henry 2/16/17
Regional Ecologist Date

Eric Roers 2/17/17
Forester Date

Joe Henry 2/16/17
Property Manager Date

Jim Woodford 2/17/17
Area/Team Supervisor Date

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